



# THE IMPACT OF NATURAL DISASTER ON CHILDHOOD EDUCATION

EVIDENCE FROM NEPAL

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**Two devastating earthquakes hit Nepal in April and May of 2015, affecting Nepal's growing education system.** The earthquake and aftershock damage destroyed homes, infrastructure, and schools throughout Nepal. Given the amount of damage inflicted on businesses, housing, and the educational sector, this study looks at *what was the impact of the 2015 earthquakes on school outcomes in Nepal?*

## BACKGROUND: NEPAL EARTHQUAKES AND NEPAL'S PRIMARY EDUCATION SYSTEM

**In Nepal, the devastation created by the two large earthquakes and the subsequent aftershocks affected 8 million people.** Over 30,000 people were killed or injured because of the earthquake, and close to 500,000 houses were destroyed. The estimated cost of rebuilding the education sector in Nepal is 39.7 billion Nepalese Rupees (\$397.1 million United States Dollars (USD)). The total economic damage is estimated to be 39.7 billion Nepalese Rupees (\$397.1 million United States Dollars).

Nepal's official education system began approximately sixty years ago. Since then, in order to reach the United Nations Education For All (EFA) and Millennium Development Goals, the country has made vast improvements in the quality of education. One of the main contributions to the improvements has been increased government education expenditure. The Nepalese government now spends 4.7 percent of its GDP on education compared to 2.9 percent it spent in 1999. In addition, the Nepalese government is working to decentralize education by allowing local schools more autonomy in the education system. Overall, attendance in Nepal has increased, although it varies by urban and rural areas. In urban areas, net attendance was above eighty percent during 1995 — 1999 and has reached almost ninety percent during 2000 — 2004. In rural areas, the net attendance increased by ten percent, from approximately sixty percent to seventy percent over the same period.

## HOW NATURAL DISASTER AFFECTS EDUCATION

**Based on our literature review, there are four main channels through which natural disasters may impact education:** psychological impact, shifts in child labor, infrastructure damage, and poverty.

## POLICY RECOMMENDATIONS

### 1. Rebuild school infrastructure

Recognizing that a child's academic journey can be negatively affected by earthquakes, it is crucial for NGOs and aid organizations to *make rebuilding school infrastructure a priority after an earthquake*. A lack of education can have long-term effects on the economic resilience of a household and collectively hamper the development of Nepal.

### 2. Provide subsidies to vulnerable groups

The most vulnerable groups after a natural disaster are children ages fifteen to eighteen, children who are in the lowest Hindu castes, and students whose household wealth is lower than their peers. Therefore, *NGOs and aid organization should provide financial subsidies to these families who have children in these vulnerable groups* to ensure these children can remain in school and continue their education.

The psychological impact of natural disasters can hinder a student's ability to perform well in school. After a natural disaster, survivors have shown symptoms similar to post-traumatic stress disorder (PTSD), which can last up to five years following the disaster and decrease academic performance.

There is a clear linkage between natural disasters, child labor, and education. Natural disasters are external shocks that disrupt the livelihood of families, at times forcing children to assist in income-generating activities to compensate for the loss. Following a natural disaster, high dropout rates may be due to children being pressured or forced by their parents to choose work over school.

Damage to infrastructure caused by natural disasters decreases availability and increases costs of attending school for many children. In part, this is due to the fact that destruction of business infrastructure and physical capital following a disaster can reduce the potential returns on additional schooling if the places to work are operating below capacity. This thereby reduces the demand for education. In addition, destroyed school buildings also have detrimental effects on scholarly achievement. Students who attend public schools that are heavily damaged from a natural disaster are found to have lower test scores by roughly eight percent.

Studies consistently find that natural disasters have a larger negative impact on lower income families and communities. In poorer households where the family cannot support themselves after a natural disaster, children are less likely to go to school. The impact on education attainment by gender also is related to the recovery capacity of a family. Boys are more likely to go to school if parents believe there is a higher opportunity cost.

## DATA AND EMPIRICAL APPROACH

**The empirical analysis uses primary data collected during a field survey administered to school-aged children at twelve schools in six districts of Nepal during March 2016.** The survey, entitled Nepal School

Children Survey (NSCS), was conducted by a capstone class from Texas A&M University Bush School of Governance and Public Service, in collaboration with Rautahat Development Trust, a development NGO in Nepal. Altogether 337 students were interviewed about school enrollment to collect attendance data on 834 children aged 5-18, which included students interviewed and their siblings.

Interview questions were guided by the Nepal Living Standard Survey (NLSS) of 2011 for comparability and the implementation of the double-difference (DD) method. The DD method is used to compare school outcomes before and after the earthquake across districts with different severity levels of earthquakes. This approach effectively takes into account differences affecting school outcomes across districts that are unlikely to change during 2011-2016 and assumes that the change in outcomes would have been the same in all districts were it not for the earthquakes.

## RESULTS

**The results from the DD regressions show that the earthquakes have statistically and economically significant negative effects on school enrollment and school attendance in children aged 5-18.** Children in districts with a higher intensity of shaking are more likely to miss school and less likely to be enrolled.

Furthermore, the empirical analysis indicates not all children are equally affected by the earthquakes. Older children (between the ages of 15-18), children not from Brahmin, Chhetri, or Newar castes (high castes), and children from less well-off households are disproportionately affected, making them more vulnerable than their counterparts. ∞



**The Bush School of Government and Public Service** Spring 2016 capstone course—comprised of students Levi Brewer, Leah Crowder, Minseok Lee, Elshad Mikayilov, Sanmita Nepal, Alexandra Perl, Brittany Hardin Tanguay and Morten Wendelbo, conducted this research under the supervision of Dr. Ren Mu and guidance of Dr. Leslie Ruyle. For specific inquiries, please contact Morten Wendelbo ([wendelbom12@tamu.edu](mailto:wendelbom12@tamu.edu)) or Leslie Ruyle ([ruyle@tamu.edu](mailto:ruyle@tamu.edu)).

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